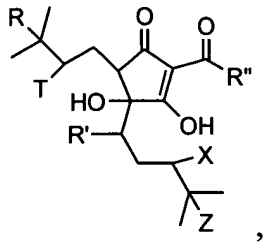
WHAT IS CLAIMED IS:

1. A composition comprising as a first component, a fraction isolated or derived from hops; and as a second component, at least one member selected from the group consisting of rosemary, an extract derived from rosemary, a compound derived from rosemary, a triterpine species, a diterpine lactone species, and tryptanthrin.

2. The composition of Claim 1, erein the fraction isolated or derived from hops is extracted with CO_2.

3. The composition of Claim 1, wherein the fraction isolated or derived from hops is selected from the group consisting of alpha acids, isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

4. The composition of Claim 1, wherein the fraction isolated or derived from hops comprises a compound of a supragenus having the formula:



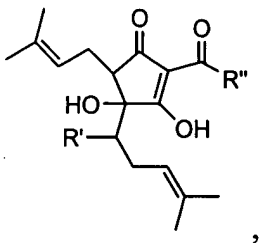
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

5. The composition of Claim 1, wherein the fraction isolated or derived from hops comprises a compound of Genus A having the formula:

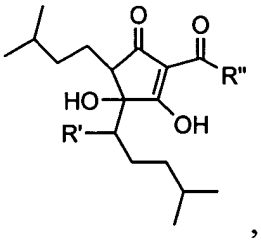


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

6. The composition of Claim 1, wherein the fraction isolated or derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

7. The composition of Claim 1, wherein the fraction isolated or derived from hops comprises a compound selected from the group consisting of humulone, cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

8. The composition of Claim 1, wherein the second component is a compound derived from rosemary that is selected from the group consisting of 1,8-cineole, 19-alpha-hydroxyursolic acid, 2-ß-hydroxyoleanolic acid, 3-O-acetyloleanolic acid, 3-O-acetylursolic acid, 6-methoxy-luteolin-7-glucoside, 6-methoxyluteolin, 6-methoxyluteolin-7-glucoside, methoxyluteolin-7-methylether, 7-ethoxy-rosmanol, 7-methoxy-rosmanol, alpha-amyrin,

alpha-humulene, alpha-hydroxyhydrocaffeic acid, alpha-pinene, alpha-terpinene, alpha-terpinenyl acetate, alpha-terpineol, alpha-thujone, apigenin, apigenin-7-glucoside, curcumene, benzyl-alcohol, ß-amyrenone, ß-amyrin, ß-elemene, ß-pinene, betulin, betulinic acid, borneol, bornyl-acetate, caffeic acid, camphene, camphor, carnosic acid, carnosol, carvacrol, carvone, caryophyllene, caryophyllene-oxide, chlorogenic acid, diosmetin, gamma-terpinene, hesperidin, isoborneol, limonene, luteolin, luteolin-3'-O-(3"-O-acetyl)-ß-D-glucuronide, luteolin-3'-O-(4"-O-acetyl)-ß-D-glucuronide, luteolin-3'-O-ß-D-glucuronide, luteolin-7-glucoside, methyl-eugenol, myrcene, neo-chlorogenic acid, nepetin, octanoic acid, oleanolic acid, p-cymene, piperitenone, rosmanol, rosmaric acid, rosmaricine, rosmaridiphenol, rosemarinic acid, rosmarinol, rosmariquinone, sabinene, sabinyl acetate, salicylates, salicylic acid-2-ß-D-glucoside, squalene, terpinen-4-ol, terpinolene, thymol, trans-anethole, trans-carveol, ursolic acid, verbenone, and zingiberene.

9. The composition of Claim 8, wherein the second component is a compound derived from rosemary that is selected from the group consisting of betulin, betulinic acid, carnosic acid, carnosol, carvacrol, chlorogenic acid, diosmetin, limonene, and luteolin.

10. The composition of Claim 1, wherein the second component is a triterpene species that is selected from the group consisting of 18-a-glycyrrhetinic acid, 18-ß-glycyrrhetinic acid, 2-a-3-a-dihydrooxyurs-12-3n-28-onic acid, 3-a-hydroxyursolic acid, 3-oxo-ursolic acid, betulin, betulinic acid, celastrol, eburicoic acid, friedelin, glycyrrhizin, gypsogenin, oleanolic acid, oleanolic acid-3-acetate, pachymic acid, pinicolic acid, sophoradiol, soyasapogenol A, soyasapogenol B, tripterin, triptophenolide, tumulosic acid, ursolic acid, ursolic acid-3-acetate, uvaol, and ß-sitosterol.

11. The composition of Claim 10, wherein the second component is a triterpene species that is selected from the group consisting of 18-a-glycyrrhetinic acid, 18-ß-glycyrrhetinic acid, 2-a-3-a-dihydrooxyurs-12-3n-28-onic acid, 3-a-hydroxyursolic acid, 3-oxo-ursolic acid, betulin, betulinic acid, celastrol, friedelin, oleanolic acid, tripterin, triptophenolide, ursolic acid, and uvaol.

12. The composition of Claim 1, wherein the second component is tryptanthrin, a triterpene species, or a diterpene lactone species that is conjugated to a member selected from

the group consisting of mono- or di-saccharides, amino acids, sulfates, succinate, acetate, and glutathione.

13. The composition of Claim 1, wherein the composition comprises about 0.5 to 10000 mg of the fraction isolated or derived from hops.

14. The composition of Claim 13, wherein the composition comprises about 50 to 7500 mg of the fraction isolated or derived from hops.

15. The composition of Claim 1, wherein the composition comprises about 0.35 to 3500 mg of tryptanthrin, wherein the second component is tryptanthrin.

16. The composition of Claim 15, wherein the composition comprises about 0.7 to 700 mg of tryptanthrin, wherein the second component is tryptanthrin.

17. The composition of Claim 1, wherein the composition comprises about 0.5 to 5000 mg of the second component, wherein the second component is selected from the group consisting of rosemary, extract derived from rosemary, and a compound derived from rosemary.

18. The composition of Claim 17, wherein the composition comprises about 5 to 2000 mg of the second component, wherein the second component is selected from the group consisting of rosemary, extract derived from rosemary, and a compound derived from rosemary.

19. The composition of Claim 1, wherein the composition comprises about 0.035 to 3500 mg of a triterpene species, wherein the second component is a triterpene species.

20. The composition of Claim 19, wherein the composition comprises about 0.7 to 700 mg of a triterpene species, wherein the second component is a triterpene species.

21. The composition of Claim 1, wherein the composition comprises about 0.001 to 10 weight percent of the first component.

22. The composition of Claim 21, wherein the composition comprises about 0.1 to 1 weight percent of the first component.

23. The composition of Claim 1, wherein the composition comprises about 0.001 to 10 weight percent of the second component.

24. The composition of Claim 23, wherein the composition comprises about 0.1 to 1 weight percent of the second component.

25. The composition of Claim 1, wherein a ratio of the first component to the second component is in the range of about 100:1 to about 1:100.

26. The composition of Claim 25, wherein the ratio of the first component to the second component is in the range of about 50:1 to about 1:50.

27. The composition of Claim 1, wherein the composition further comprises a pharmaceutically acceptable carrier.

28. The composition of claim 1, said composition comprising a fraction isolated or derived from hops extracted with CO2, oleanolic acid and an extract derived from rosemary.

29. The composition of claim 1, said composition comprising reduced isoalpha acids, oleanolic acid and an extract derived from rosemary.

30. The composition of claim 1, further comprising glucosamine.

31. A method of modulating inflammatory response in cells, the method comprising contacting the cells with a composition comprising a fraction isolated or derived from hops and a second component selected from the group consisting of rosemary, an extract derived from rosemary, a compound derived from rosemary, a triterpene species, a diterpene lactone species, and tryptanthrin.

32. The method of claim 31, wherein said composition comprises a fraction isolated or derived from hops extracted with CO_2, oleanolic acid and an extract derived from rosemary.

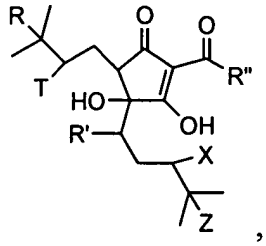
33. The method of claim 31, wherein said composition comprises reduced isoalpha acids, oleanolic acid and an extract derived from rosemary.

34. The method of claim 31, wherein the composition further comprises glucosamine.

35. A method of treating or inhibiting a pathological condition in a mammal associated with tissue-specific activation of inflammation, the method comprising administering to the mammal a composition comprising a fraction isolated or derived from hops and a second component selected from the group consisting of rosemary, an extract derived from rosemary, a compound derived from rosemary, a triterpene species, a diterpene lactone species, and tryptanthrin.

36. The method of Claim 35, wherein the fraction isolated or derived from hops is selected from the group consisting of alpha acids, isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

37. The method of Claim 35, wherein the fraction isolated or derived from hops comprises a compound of a supragenus having the formula:



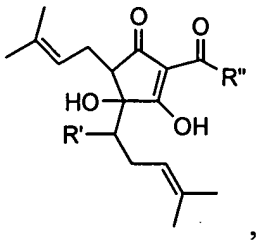
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

38. The method of Claim 35, wherein the fraction isolated or derived from hops comprises a compound of Genus A having the formula:

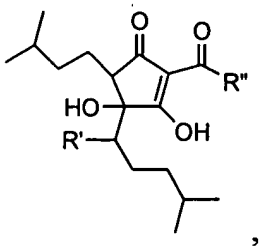


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

39. The method of Claim 35, wherein the fraction isolated or derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

40. The method of Claim 35, wherein the fraction isolated or derived from hops comprises a compound selected from the group consisting of humulone, cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

41. The method of Claim 35, wherein the composition comprises about 0.5 to 10000 mg of the fraction isolated or derived from hops.

42. The method of Claim 41, wherein the composition comprises about 50 to 7500 mg of the fraction isolated or derived from hops.

43. The method of Claim 35, wherein the composition comprises about 0.001 to 10 weight percent of the fraction isolated or derived from hops.

44. The method of Claim 43, wherein the composition comprises about 0.1 to 1 weight percent of the fraction isolated or derived from hops.

45. The method of Claim 35, wherein the second component is rosemary.

46. The method of Claim 35, wherein the second component is an extract derived from rosemary.

47. The method of Claim 35, wherein the second component is a triterpene species.

48. The method of Claim 35, wherein the composition further comprises a third component different from the second component, said third component is selected from the group consisting of rosemary, an extract derived from rosemary, a compound derived from rosemary, a triterpene species, a diterpene lactone species, and tryptanthrin.

49. The method of Claim 48, wherein the second and third components are an extract derived from rosemary and tryptanthrin, respectively.

50. The method of Claim 35, wherein the second component is a compound derived from rosemary that is selected from the group consisting of 1,8-cineole, 19-alpha-hydroxyursolic acid, 2-ß-hydroxyoleanolic acid, 3-O-acetyloleanolic acid, 3-O-acetylursolic acid, 6-methoxy-luteolin-7-glucoside, 6-methoxyluteolin, 6-methoxyluteolin-7-glucoside, methoxyluteolin-7-methylether, 7-ethoxy-rosmanol, 7-methoxy-rosmanol, alpha-amyrin, alpha-humulene, alpha-hydroxyhydrocaffeic acid, alpha-pinene, alpha-terpinene, alpha-terpinenyl acetate, alpha-terpineol, alpha-thujone, apigenin, apigenin-7-glucoside, curcumene, benzyl-alcohol, ß-amyrenone, ß-amyrin, ß-elemene, ß-pinene, betulin, betulinic acid, borneol, bornyl-acetate, caffeic acid, camphene, camphor, carnosic acid, carnosol, carvacrol, carvone, caryophyllene, caryophyllene-oxide, chlorogenic acid, diosmetin, gamma-terpinene, hesperidin, isoborneol, limonene, luteolin, luteolin-3'-O-(3"-O-acetyl)-ß-D-glucuronide, luteolin-3'-O-(4"-O-acetyl)-ß-D-glucuronide, luteolin-3'-O-ß-D-glucuronide, luteolin-7-glucoside, methyl-eugenol, myrcene, neo-chlorogenic acid, nepetin, octanoic acid, oleanolic acid, p-cymene, piperitenone, rosmanol, rosmaric acid, rosmaricine, rosmaridiphenol, rosemarinic acid, rosmarinol, rosmariquinone, sabinene, sabinyl acetate, salicylates, salicylic acid-2-ß-D-glucoside, squalene, terpinen-4-ol, terpinolene, thymol, trans-anethole, trans-carveol, ursolic acid, verbenone, and zingiberene.

51. The method of Claim 50, wherein the second component is a compound derived from rosemary that is selected from the group consisting of betulin, betulinic acid, carnosic acid, carnosol, carvacrol, chlorogenic acid, diosmetin, limonene, and luteolin.

52. The method of Claim 35, wherein the composition comprises about 0.5 to 5000 mg of the second component, wherein the second component is selected from the group consisting of rosemary, extract derived from rosemary, and a compound derived from rosemary.

53. The method of Claim 52, wherein the composition comprises about 5 to 2000 mg of the second component, wherein the second component is selected from the group consisting of rosemary, extract derived from rosemary, and a compound derived from rosemary.

54. The method of Claim 35, wherein the second component is a triterpene species or a diterpene lactone species that is conjugated to a member selected from the group consisting of mono- or di-saccharides, amino acids, sulfates, succinate, acetate, and glutathione.

55. The method of Claim 35, wherein the second component is a triterpene species that is selected from the group consisting of 18-a-glycyrrhetinic acid, 18-ß-glycyrrhetinic acid, 2-a-3-a-dihydrooxyurs-12-3n-28-onic acid, 3-a-hydroxyursolic acid, 3-oxo-ursolic acid, betulin, betulinic acid, celastrol, eburicoic acid, friedelin, glycyrrhizin, gypsogenin, oleanolic acid, oleanolic acid-3-acetate, pachymic acid, pinicolic acid, sophoradiol, soyasapogenol A, soyasapogenol B, tripterin, triptophenolide, tumulosic acid, ursolic acid, ursolic acid-3-acetate, uvaol, and ß-sitosterol.

56. The method of Claim 55, wherein the second component is a triterpene species that is selected from the group consisting of 18-a-glycyrrhetinic acid, 18-ß-glycyrrhetinic acid, 2-a-3-a-dihydrooxyurs-12-3n-28-onic acid, 3-a-hydroxyursolic acid, 3-oxo-ursolic acid, betulin, betulinic acid, celastrol, friedelin, oleanolic acid, tripterin, triptophenolide, ursolic acid, and uvaol.

57. The method of Claim 35, wherein the composition comprises about 0.035 to 3500 mg of a triterpene species, wherein the second component is a triterpene species.

58. The method of Claim 57, wherein the composition comprises about 0.7 to 700 mg of a triterpene species, wherein the second component is a triterpene species.

59. The method of Claim 35, wherein the second component is tryptanthrin that is conjugated to a member selected from the group consisting of mono- or di-saccharides, amino acids, sulfates, succinate, acetate, and glutathione.

60. The method of Claim 35, wherein the composition comprises about 0.035 to 3500 mg of tryptanthrin, wherein the second component is tryptanthrin.

61. The method of Claim 60, wherein the composition comprises about 0.7 to 700 mg of tryptanthrin, wherein the second component is tryptanthrin.

62. The method of Claim 35, wherein the composition comprises about 0.001 to 10 weight percent of the second component.

63. The method of Claim 62, wherein the composition comprises about 0.1 to 1 weight percent of the second component.

64. The method of Claim 35, wherein a ratio of the first component to the second component is in the range of about 100:1 to about 1:100.

65. The method of Claim 64, wherein the ratio of the first component to the second component is in the range of about 50:1 to about 1:50.

66. The method of Claim 35, wherein the pathological condition is selected from the group consisting of autoimmune diseases, inflammatory diseases, neurological diseases, and cancer.

67. The method of Claim 35, wherein the pathological condition is selected from the group consisting of inflammation, inflammation-associated disorders, arthritis, asthma, bronchitis, menstrual cramps, tendonitis, bursitis, skin-related conditions, gastrointestinal conditions, cancer, ophthalmic diseases, pulmonary inflammation, nervous system disorders, allergic rhinitis, respiratory distress syndrome, endotoxin shock syndrome, atherosclerosis, and central nervous damage.

68. The method of Claim 35, wherein the composition further comprises a pharmaceutically acceptable carrier.

69. The method of Claim 35, wherein the composition is administered orally, topically, parenterally, or rectally.

70. The method of claim 35, wherein said composition comprises a fraction isolated or derived from hops extracted with CO_2, oleanolic acid and an extract derived from rosemary.

71. The method of claim 35, wherein said composition comprises reduced isoalpha acids, oleanolic acid and an extract derived from rosemary.

72. The method of claims 35, wherein the composition further comprises glucosamine.

73. A method of modulating the amount of cyclooxygenase-2 (COX-2) activity in target cells without substantially modulating COX-2 activity in non-target cells, the method comprising contacting the cells with a composition comprising a fraction isolated or derived from hops and a second component selected from the group consisting of rosemary, an extract derived from rosemary, a compound derived from rosemary, a triterpene species, a diterpene lactone species, and tryptanthrin.

74. The method of Claim 73, wherein the non-target cells are also contacted with said fraction isolated or derived from hops.

75. The method of Claim 73, wherein the contacting step is *in vivo*.

76. The method of Claim 73, wherein the COX-2 activity is modulated by inhibition of COX-2 gene.

77. The method of claim 73, wherein said composition comprises a fraction isolated or derived from hops extracted with CO_2, oleanolic acid and an extract derived from rosemary.

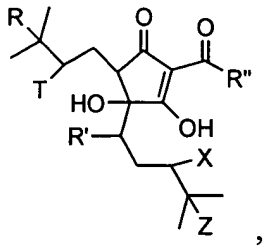
78. The method of claim 73, wherein said composition comprises reduced isoalpha acids, oleanolic acid and an extract derived from rosemary.

79. The method of claim 73, wherein the composition further comprises glucosamine.

80. A method of treating or inhibiting a pathological condition in a mammal involving inhibiting inducibility or activity of cyclooxygenase-2 (COX-2), the method comprising administering to the mammal a composition comprising a fraction isolated or derived from hops and a second component selected from the group consisting of rosemary, an extract derived from rosemary, a compound derived from rosemary, a triterpene species, a diterpene lactone, and tryptanthrin.

81. The method of Claim 80, wherein the fraction isolated or derived from hops is selected from the group consisting of alpha acids, isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

82. The method of Claim 80, wherein the fraction isolated or derived from hops comprises a compound of a supragenus having the formula:



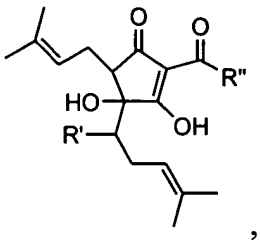
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

83. The method of Claim 80, wherein the fraction isolated or derived from hops comprises a compound of Genus A having the formula:

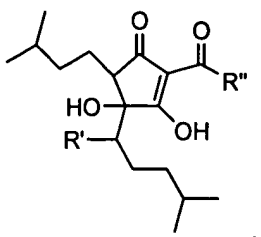


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

84. The method of Claim 80, wherein the fraction isolated or derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

85. The method of Claim 80, wherein the fraction isolated or derived from hops comprises a compound selected from the group consisting of humulone, cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

86. The method of Claim 80, wherein the second component is an extract derived from rosemary.

87. The method of Claim 80, wherein the second component is a triterpene species.

88. The method of Claim 80, wherein the composition further comprises a third component different from the second component, the third component is selected from the group consisting of rosemary, an extract derived from rosemary, a compound derived from rosemary, a triterpene species, a diterpene lactone, and tryptanthrin.

89. The method of Claim 88, wherein the second and third components are an extract derived from rosemary and tryptanthrin, respectively.

90. The method of Claim 80, wherein the second component is a compound derived from rosemary that is selected from the group consisting of 1,8-cineole, 19-alpha-hydroxyursolic acid, 2-ß-hydroxyoleanolic acid, 3-O-acetyloleanolic acid, 3-O-acetylursolic acid, 6-methoxy-luteolin-7-glucoside, 6-methoxyluteolin, 6-methoxyluteolin-7-glucoside, methoxyluteolin-7-methylether, 7-ethoxy-rosmanol, 7-methoxy-rosmanol, alpha-amyrin, alpha-humulene, alpha-hydroxyhydrocaffeic acid, alpha-pinene, alpha-terpinene, alpha-terpinenyl acetate, alpha-terpineol, alpha-thujone, apigenin, apigenin-7-glucoside, curcumene, benzyl-alcohol, ß-amyrenone, ß-amyrin, ß-elemene, ß-pinene, betulin, betulinic acid, borneol, bornyl-acetate, caffeic acid, camphene, camphor, carnosic acid, carnosol, carvacrol, carvone, caryophyllene, caryophyllene-oxide, chlorogenic acid, diosmetin, gamma-

terpinene, hesperidin, isoborneol, limonene, luteolin, luteolin-3'-O-(3"-O-acetyl)-ß-D-glucuronide, luteolin-3'-O-(4"-O-acetyl)-ß-D-glucuronide, luteolin-3'-O-ß-D-glucuronide, luteolin-7-glucoside, methyl-eugenol, myrcene, neo-chlorogenic acid, nepetin, octanoic acid, oleanolic acid, p-cymene, piperitenone, rosmanol, rosmaric acid, rosmaricine, rosmaridiphenol, rosemarinic acid, rosmarinol, rosmariquinone, sabinene, sabinyl acetate, salicylates, salicylic acid-2-ß-D-glucoside, squalene, terpinen-4-ol, terpinolene, thymol, trans-anethole, trans-carveol, ursolic acid, verbenone, and zingiberene.

91. The method of Claim 90, wherein the second component is a triterpene species or a diterpene lactone species that is conjugated to a member selected from the group consisting of mono- or di-saccharides, amino acids, sulfates, succinate, acetate, and glutathione.

92. The method of Claim 80, wherein the second component is a triterpene species that is selected from the group consisting of 18-a-glycyrrhetinic acid, 18-ß-glycyrrhetinic acid, 2-a-3-a-dihydrooxyurs-12-3n-28-onic acid, 3-a-hydroxyursolic acid, 3-oxo-ursolic acid, betulin, betulinic acid, celastrol, eburicoic acid, friedelin, glycyrrhizin, gypsogenin, oleanolic acid, oleanolic acid-3-acetate, pachymic acid, pinicolic acid, sophoradiol, soyasapogenol A, soyasapogenol B, tripterin, triptophenolide, tumulosic acid, ursolic acid, ursolic acid-3-acetate, uvaol, and ß-sitosterol.

93. The method of Claim 80, wherein the second component is tryptanthrin that is conjugated to a member selected from the group consisting of mono- or di-saccharides, amino acids, sulfates, succinate, acetate, and glutathione.

94. The method of Claim 80, wherein a ratio of the first component to the second component is in the range of about 100:1 to about 1:100.

95. The method of Claim 94, wherein the ratio of the first component to the second component is in the range of about 50:1 to about 1:50.

96. The method of Claim 80, wherein the pathological condition is selected from the group consisting of inflammation, inflammation-associated disorders, arthritis, asthma, bronchitis, menstrual cramps, tendonitis, bursitis, skin-related conditions, gastrointestinal conditions, cancer, ophthalmic diseases, pulmonary inflammation, nervous system disorders,

allergic rhinitis, respiratory distress syndrome, endotoxin shock syndrome, atherosclerosis, and central nervous damage.

97. The method of Claim 80, wherein the composition further comprises a pharmaceutically acceptable carrier.

98. The method of Claim 80, wherein the composition is administered orally, topically, parenterally, or rectally.

99. The method of claim 80, wherein said composition comprises a fraction isolated or derived from hops extracted with CO_2, oleanolic acid and an extract derived from rosemary.

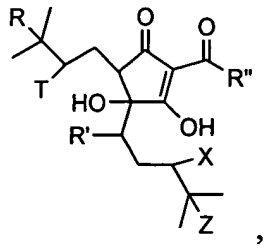
100. The method of claim 80, wherein said composition comprises reduced isoalpha acids, oleanolic acid and an extract derived from rosemary.

101. The method of claim 80, wherein the composition further comprises glucosamine.

102. A method of inhibiting prostaglandin synthesis selectively in target cells, the method comprising contacting the cells with a fraction isolated or derived from hops and a second component selected from the group consisting of rosemary, an extract derived from rosemary, a compound derived from rosemary, a triterpene species, a diterpene lactone, and tryptanthrin.

103. The method of Claim 102, wherein the fraction isolated or derived from hops is selected from the group consisting of alpha acids, isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

104. The method of Claim 102, wherein the fraction isolated or derived from hops comprises a compound of a supragenus having the formula:



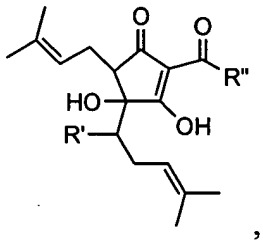
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

105. The method of Claim 102, wherein the fraction isolated or derived from hops comprises a compound of Genus A having the formula:

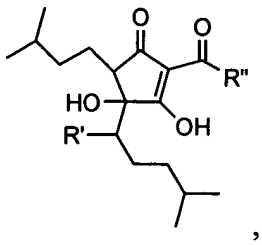


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

106. The method of Claim 102, wherein the fraction isolated or derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

107. The method of Claim 102, wherein the fraction isolated or derived from hops comprises a compound selected from the group consisting of humulone, cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-

isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

108. The method of claim 102, wherein said composition comprises a fraction isolated or derived from hops extracted with CO_2, oleanolic acid and an extract derived from rosemary.

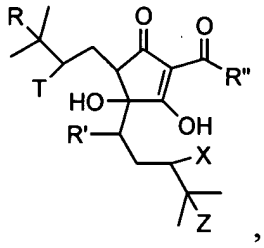
109. The method of claim 102, wherein said composition comprises reduced isoalpha acids, oleanolic acid and an extract derived from rosemary.

110. The method of claim 102, wherein the composition further comprises glucosamine.

111. A method of inhibiting an inflammatory response selectively in target cells, the method comprising contacting the cells with a fraction isolated or derived from hops and a second component selected from the group consisting of rosemary, an extract derived from rosemary, a compound derived from rosemary, a triterpene species, a diterpene lactone, and tryptanthrin.

112. The method of Claim 111, wherein the fraction isolated or derived from hops is selected from the group consisting of alpha acids, isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

113. The method of Claim 111, wherein the fraction isolated or derived from hops comprises a compound of a supragenus having the formula:



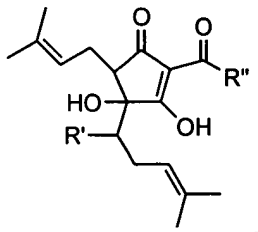
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

114. The method of Claim 111, wherein the fraction isolated or derived from hops comprises a compound of Genus A having the formula:

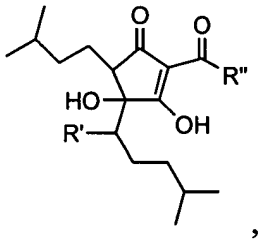


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

115. The method of Claim 111, wherein the fraction isolated or derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

116. The method of Claim 111, wherein the fraction isolated or derived from hops comprises a compound selected from the group consisting of humulone, cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone,

tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

117. The method of claim 111, wherein said composition comprises a fraction isolated or derived from hops extracted with CO_2, oleanolic acid and an extract derived from rosemary.

118. The method of claim 111, wherein said composition comprises reduced isoalpha acids, oleanolic acid and an extract derived from rosemary.

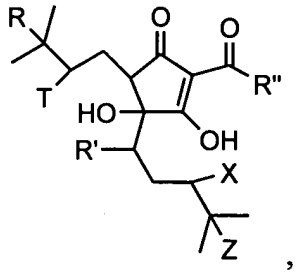
119. The method of claim 111, wherein the composition further comprises glucosamine.

120. A method of modulating the inflammatory response in cells, the method comprising contacting the cells with a composition comprising a fraction isolated or derived from hops.

121. A method of treating or inhibiting a pathological condition in a mammal associated with tissue-specific activation of inflammation, the method comprising administering to the mammal a composition comprising a fraction derived from hops.

122. The method of Claim 121, wherein the fraction derived from hops is selected from the group consisting of isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

123. The method of Claim 121, wherein the fraction derived from hops comprises a compound of a supragenus having the formula:



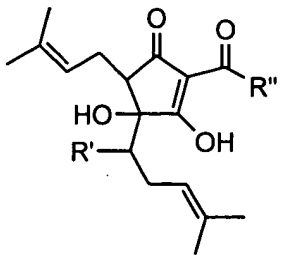
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

124. The method of Claim 121, wherein the fraction derived from hops comprises a compound of Genus A having the formula:

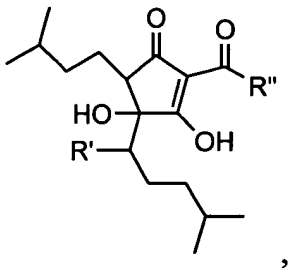


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

125. The method of Claim 121, wherein the fraction derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

126. The method of Claim 121, wherein the fraction derived from hops comprises a compound selected from the group consisting of cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-

adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

127. The method of Claim 121, wherein the composition comprises about 0.5 to 10000 mg of the fraction derived from hops.

128. The method of Claim 127, wherein the composition comprises about 50 to 7500 mg of the fraction derived from hops.

129. The method of Claim 121, wherein the composition comprises about 0.001 to 10 weight percent of the fraction derived from hops.

130. The method of Claim 129, wherein the composition comprises about 0.1 to 1 weight percent of the fraction derived from hops.

131. The method of Claim 121, wherein the pathological condition is selected from the group consisting of autoimmune diseases, inflammatory diseases, neurological diseases, and cancer.

132. The method of Claim 121, wherein the pathological condition is selected from the group consisting of inflammation, inflammation-associated disorders, arthritis, asthma, bronchitis, menstrual cramps, tendonitis, bursitis, skin-related conditions, gastrointestinal conditions, cancer, ophthalmic diseases, pulmonary inflammation, nervous system disorders, allergic rhinitis, respiratory distress syndrome, endotoxin shock syndrome, atherosclerosis, and central nervous damage.

133. The method of Claim 121, wherein the composition further comprises a pharmaceutically acceptable carrier.

134. The method of Claim 121,wherein the composition is administered orally, topically, parenterally, or rectally.

135. The method of claim 121, wherein the composition further comprises glucosamine.

136. A method of modulating the amount of cyclooxygenase-2 (COX-2) activity in target cells without substantially modulating COX-2 activity in non-target cells, the method comprising contacting the cells with a fraction derived from hops.

137. The method of Claim 136,wherein the non-target cells are also contacted with said fraction derived from hops.

138. The method of Claim 136,wherein the contacting step is *in vivo*.

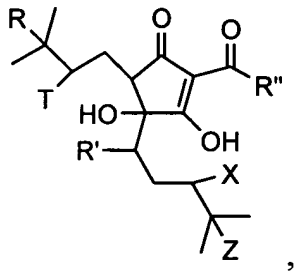
139. The method of Claim 136,wherein the COX-2 activity is modulated by inhibition of COX-2 gene.

140. The method of claim 136, wherein the composition further comprises glucosamine.

141. A method of treating or inhibiting a pathological condition in a mammal involving inhibiting inducibility or activity of cyclooxygenase-2 (COX-2), the method comprising administering to the mammal a composition comprising a fraction derived from hops.

142. The method of Claim 141,wherein the fraction derived from hops is selected from the group consisting of isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

143. The method of Claim 141, wherein the fraction derived from hops comprises a compound of a supragenus having the formula:



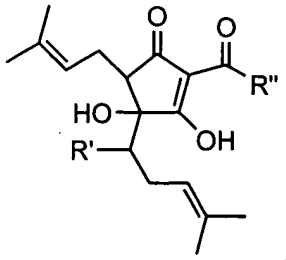
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

144. The method of Claim 141, wherein the fraction derived from hops comprises a compound of Genus A having the formula:

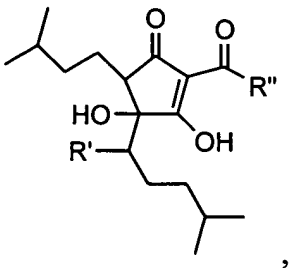


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

145. The method of Claim 141, wherein the fraction derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

146. The method of Claim 141, wherein the fraction derived from hops comprises a compound selected from the group consisting of cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

147. The method of Claim 141, wherein the pathological condition is selected from the group consisting of wherein the pathological condition is selected from the group consisting of inflammation, inflammation-associated disorders, arthritis, asthma, bronchitis, menstrual cramps, tendonitis, bursitis, skin-related conditions, gastrointestinal conditions, cancer, ophthalmic diseases, pulmonary inflammation, nervous system disorders, allergic

rhinitis, respiratory distress syndrome, endotoxin shock syndrome, atherosclerosis, and central nervous damage.

148. The method of Claim 141, wherein the composition further comprises a pharmaceutically acceptable carrier.

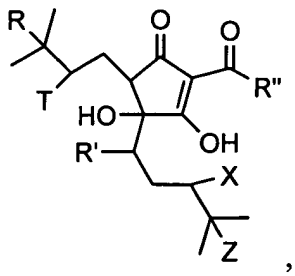
149. The method of Claim 141, wherein the composition is administered orally, topically, parenterally, or rectally.

150. The method of claim 141, wherein the composition further comprises glucosamine.

151. A method of inhibiting prostaglandin synthesis selectively in target cells, the method comprising contacting the cells with a fraction derived from hops.

152. The method of Claim 151, wherein the fraction derived from hops is selected from the group consisting of isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

153. The method of Claim 151, wherein the fraction derived from hops comprises a compound of a supragenus having the formula:



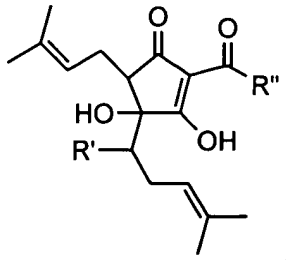
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

154. The method of Claim 151, wherein the fraction derived from hops comprises a compound of Genus A having the formula:

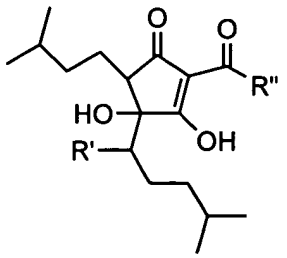


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

155. The method of Claim 151, wherein the fraction derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

156. The method of Claim 151, wherein the fraction derived from hops comprises a compound selected from the group consisting of cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

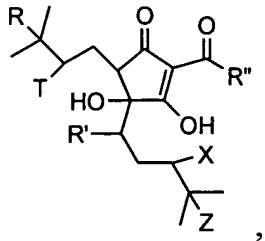
157. The method of claim 151, wherein the composition further comprises glucosamine.

158. A method of modulating NF-κB in cells not associated with bone resorption, the method comprising contacting the cells with a composition comprising a fraction isolated or derived from hops.

159. A method of treating or inhibiting a pathological condition other than osteoporosis in a mammal associated with tissue-specific activation of NF-κB, the method comprising administering to the mammal a composition comprising a fraction isolated or derived from hops.

160. The method of Claim 159, wherein the fraction is derived from hops and is selected from the group consisting of isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

161. The method of Claim 159, wherein the fraction is derived from hops and comprises a compound of a supragenus having the formula:



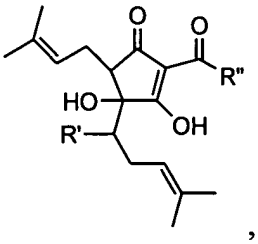
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

162. The method of Claim 159, wherein the fraction is derived from hops and comprises a compound of Genus A having the formula:

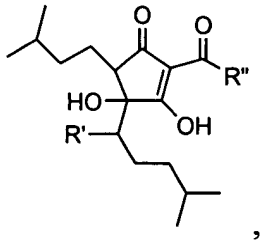


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

163. The method of Claim 159, wherein the fraction is derived from hops and comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

164. The method of Claim 159, wherein the fraction is derived from hops and comprises a compound selected from the group consisting of cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone

165. The method of Claim 159, wherein the composition comprises about 0.5 to 10000 mg of the fraction isolated or derived from hops.

166. The method of Claim 165, wherein the composition comprises about 50 to 7500 mg of the fraction isolated or derived from hops.

167. The method of Claim 159, wherein the composition comprises about 0.001 to 10 weight percent of the fraction isolated or derived from hops.

168. The method of Claim 167, wherein the composition comprises about 0.1 to 1 weight percent of the fraction isolated or derived from hops.

169. The method of Claim 159, wherein the pathological condition is selected from the group consisting of autoimmune diseases, inflammatory diseases, neurological diseases, cardiovascular diseases, and cancer.

170. The method of Claim 159, wherein the pathological condition is selected from the group consisting of asthma, HIV-1 replication, cold, and flu.

171. The method of Claim 159, wherein the composition further comprises a pharmaceutically acceptable carrier.

172. The method of Claim 159, wherein the composition is administered orally, topically, parenterally, or rectally.

173. The method of claim 159, wherein the composition further comprises glucosamine.

174. A method of modulating the amount of cyclooxygenase-2 (COX-2) activity in target cells not associated with bone resorption without substantially modulating COX-2 activity in non-target cells, the method comprising contacting the cells with a fraction isolated or derived from hops.

175. The method of Claim 174, wherein the non-target cells are also contacted with said fraction isolated or derived from hops.

176. The method of Claim 174, wherein the contacting step is *in vivo*.

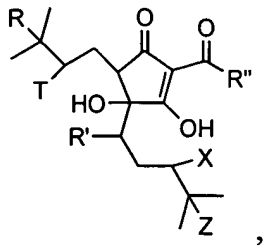
177. The method of Claim 174, wherein the COX-2 activity is modulated by inhibition of COX-2 gene.

178. The method of claim 174, wherein the composition further comprises glucosamine.

179. A method of treating or inhibiting a pathological condition other than osteoporosis in a mammal involving inhibiting inducibility or activity of cyclooxygenase-2 (COX-2), the method comprising administering to the mammal a composition comprising a fraction isolated or derived from hops.

180. The method of Claim 179, wherein the fraction is derived from hops and is selected from the group consisting of isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

181. The method of Claim 179, wherein the fraction is derived from hops and comprises a compound of a supragenus having the formula:



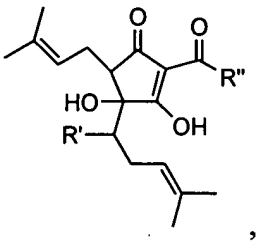
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

182. The method of Claim 179, wherein the fraction is derived from hops and comprises a compound of Genus A having the formula:

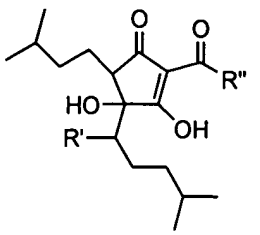


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

183. The method of Claim 179, wherein the fraction is derived from hops and comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

184. The method of Claim 179, wherein the fraction is derived from hops and comprises a compound selected from the group consisting of cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

185. The method of Claim 179, wherein the pathological condition is selected from the group consisting of wherein the pathological condition is selected from the group consisting of inflammation, inflammation-associated disorders, arthritis, asthma, bronchitis, menstrual cramps, tendonitis, bursitis, skin-related conditions, gastrointestinal conditions, cancer, ophthalmic diseases, pulmonary inflammation, nervous system disorders, allergic rhinitis, respiratory distress syndrome, endotoxin shock syndrome, atherosclerosis, and central nervous damage.

186. The method of Claim 179, wherein the composition further comprises a pharmaceutically acceptable carrier.

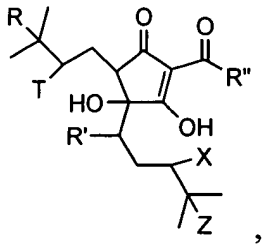
187. The method of Claim 179, wherein the composition is administered orally, topically, parenterally, or rectally.

188. The method of claim 179, wherein the composition further comprises glucosamine.

189. A method of inhibiting prostaglandin synthesis selectively in target cells, the method comprising contacting the cells with a fraction derived from hops.

190. The method of Claim 189, wherein the fraction derived from hops is selected from the group consisting of isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

191. The method of Claim 189, wherein the fraction derived from hops comprises a compound of a supragenus having the formula:



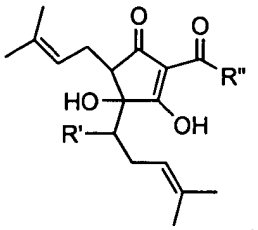
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

192. The method of Claim 189, wherein the fraction derived from hops comprises a compound of Genus A having the formula:

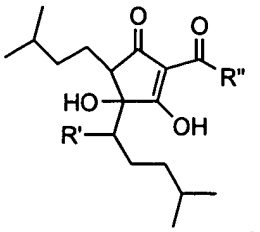


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

193. The method of Claim 189, wherein the fraction derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

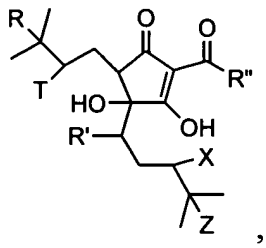
194. The method of Claim 189, wherein the fraction derived from hops comprises a compound selected from the group consisting of cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

195. The method of claim 194, wherein the composition further comprises glucosamine.

196. A method of inhibiting an inflammatory response selectively in target cells, the method comprising contacting the cells with a fraction derived from hops.

197. The method of Claim 196, wherein the fraction derived from hops is selected from the group consisting of isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

198. The method of Claim 196, wherein the fraction derived from hops comprises a compound of a supragenus having the formula:



,

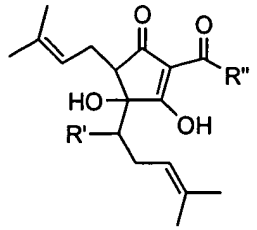
wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π

orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

199. The method of Claim 196, wherein the fraction derived from hops comprises a compound of Genus A having the formula:

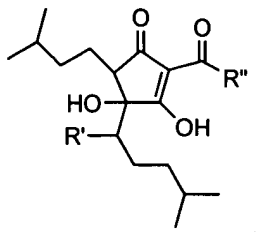


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

200. The method of Claim 196, wherein the fraction derived from hops comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

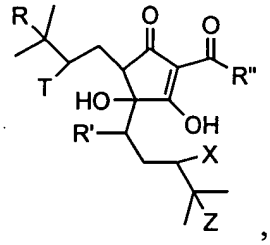
201. The method of Claim 196, wherein the fraction derived from hops comprises a compound selected from the group consisting of cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

202. A method of treating or inhibiting inflammation other than osteoporosis in a mammal, the method comprising administering to the mammal a composition comprising a fraction isolated or derived from hops.

203. The method of Claim 202, wherein the fraction is derived from hops and is selected from the group consisting of alpha acids, isoalpha acids, reduced isoalpha acids, tetra-hydroisoalpha acids, hexa-hydroisoalpha acids, beta acids, and spent hops.

204. The method of claim 202, wherein the fraction derived from hops is extracted with CO_2.

205. The method of Claim 202, wherein the fraction is derived from hops and comprises a compound of a supragenus having the formula:



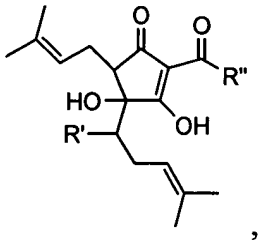
,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl;

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$; and

wherein R, T, X, and Z are independently selected from the group consisting of H, F, Cl, Br, I, and π orbital, with the proviso that if one of R, T, X, or Z is a π orbital, then the adjacent R, T, X, or Z is also a π orbital, thereby forming a double bond.

206. The method of Claim 202, wherein the fraction is derived from hops and comprises a compound of Genus A having the formula:

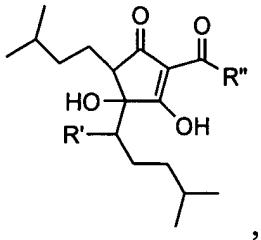


,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

207. The method of Claim 202, wherein the fraction is derived from hops and comprises a compound of Genus B having the formula:



,

wherein R' is selected from the group consisting of carbonyl, hydroxyl, OR, and OCOR, wherein R is alkyl; and

wherein R" is selected from the group consisting of $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, and $CH(CH_3)CH_2CH_3$.

208. The method of Claim 202, wherein the fraction is derived from hops and comprises a compound selected from the group consisting of cohumulone, adhumulone, isohumulone, isocohumulone, isoadhumulone, dihydro-isohumulone, dihydro-isocohumulone, dihydro-adhumulone, tetrahydro-isohumulone, tetrahydro-isocohumulone, tetrahydro-adhumulone, hexahydro-isohumulone, hexahydro-isocohumulone, and hexahydro-adhumulone.

209. The method of Claim 202, wherein the composition further comprises a pharmaceutically acceptable carrier.

210. The method of Claim 202, wherein the composition is administered orally, topically, parenterally, or rectally.

211. The method wherein the composition further comprises glucosamine.

212. A method of determining potential gastrointestinal toxicity of an anti-inflammatory agent, comprising:

(a) contacting an AGS gastric mucosal cell with an anti-inflammatory agent;

(b) contacting a target inflammatory cell with said anti-inflammatory agent;

(c) determining the 50% inhibitory concentration (IC_{50}) of prostaglandin E_2 (PGE_2) expression for said inflammatory agent in each of said AGS cell and said target inflammatory cell;

(d) determining the ratio of the IC_{50} value of said AGS cell to the IC_{50} value of said target inflammatory cell, wherein a ratio greater than 1 indicates decreased potential gastrointestinal toxicity and a ratio less than 1 indicates increased potential gastrointestinal toxicity.

213. The method of claim 212, wherein the target inflammatory cell is an A549 cell.